CLAIMS

What is Claimed is:

1. A system for generating efficient and compact update packages for updating contents of an electronic device utilizing source and target images of the contents, the system comprising:

a parser for generating distance files between the source image and the target image;

a bubble generator for generating bubbles;

a configuration manager for facilitating configuration of memory elements of the electronic device;

a bubble layout manager for modifying the source image to look similar to the target image; and,

a generator for generating update packages.

2. The system according to claim 1 wherein the parser preprocesses map files for generating the distance files.

3. The system according to claim 1 wherein the parser preprocesses symbol files for generating the distance files.

4. The system according to claim 1 wherein the bubble generator processes the distance files to generate a list of bubbles.

5. The system according to claim 1 wherein the bubble generator outputs a file containing a list of the generated bubbles.

6. The system according to claim 1 wherein the parser generates a plurality of distance files associated with a plurality of memory components in the electronic device.

7. The system according to claim 6 wherein the bubble generator processes the plurality of distance files to generate a plurality of corresponding files containing bubbles information.

8. The system according to claim 7 wherein the bubble generator utilizes the plurality of files containing bubbles information for generating an output file containing a portion of the generated bubbles.

9. The system according to claim 1 wherein the bubble layout manager comprises:
    a bubbler; and,
    a predictor for aligning objects between the source and target images.

10. The system according to claim 1 wherein the update package comprises a set of instructions and data.

11. The system according to claim 10 wherein the generator comprises:
    a residue processing unit for minimizing the number of instructions in the update package; and,
    an update package output for generating the update package.

12. The system according to claim 1 wherein the generator determines an appropriate bank order of updates.

13. The system according to claim 12 wherein the appropriate bank order provides a more size-efficient update package.

14. The system according to claim 12 wherein the appropriate bank order provides a lesser number of instructions in the update package.

15. The system according to claim 1 wherein the system further comprises:
    an entropy calculator for calculating the entropy of a segment of data;
    and, a compression unit for facilitating compression of the update package.

16. The system according to claim 15 wherein the residue processing unit utilizes the calculated entropy to select a set of instructions to determine the update package.

17. The system according to claim 16 wherein the entropy is calculated for different sets of instructions to determine the instruction set yielding the smallest entropy value.

18. A method for generating efficient and compact update packages in a generation system having a parser, a bubble generator, a configuration manager, a bubble layout manager, and a generator, the update packages for updating contents of an electronic device utilizing the source and target images of the contents, the method comprising the steps of:

        determining files for the source image;

        determining files for the target image;

        creating distance files for the source and the target images;

        generating bubble information;

        applying the bubble information to the source image;

        generating an update package; and

        outputting the update package and the bubble information.

19. The method according to claim 18 wherein the determined files for the source and the target images are parsed to create the distance files.

20. The method according to claim 18 wherein the distance files are split into at least one part.

21. The method according to claim 18 further comprising the step of verifying the distances between the source image and the target image.

22. The method according to claim 18 wherein the bubble information is configured according to configuration settings.

23. The method according to claim 18 wherein the distance files are split into parts corresponding to different sections of memory.

24. The method according to claim 20 wherein the distance files are split into parts corresponding to different sections of code.

25. The method according to claim 22 wherein the configuration settings are specified by a user.

26. The method according to claim 22 wherein the configuration settings are default configuration settings.

27. The method according to claim 18 wherein the application of the bubble information to the source image is performed by a bubbler.

28. The method according to claim 27 wherein the bubbler utilizes a predictor.

29. The method according to claim 18 wherein the generation of the update package utilizes residue processing.

30. The method according to claim 18 wherein the generation of the update package utilizes compression.

31. The method according to claim 18 wherein the update package and the bubble information are packaged together and outputted.

32. The method according to claim 18 wherein the update package and the bubble information are packaged and outputted separately.

33. The method according to claim 18 wherein the update package and the bubble information are packaged together and saved in a file.